Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (previously presented) A non-naturally occurring enterokinase-cleavable fusion protein comprising a polypeptide comprising the formula:

(1) Z_1-Xaa_1-Xaa_2-Xaa_3-Xaa_4-Asp-Arg-Xaa_5-Z_2 (SEQ ID NO:1),

wherein

(a) Z_1 is a ligand recognition sequence;

(b) Xaa_1-Xaa_2-Xaa_3-Xaa_4-Asp-Arg is an enterokinase recognition sequence, in which

Xaa_1 is Ala, Asp, Glu, Phe, Gly, Ile, Asn, Ser, or Val;

Xaa_2 is Ala, Asp, Glu, His, Ile, Leu, Met, Gln or Ser;

Xaa_3 is Asp, Glu, Phe, His, Ile, Met, Asn, Pro, Val, or Trp; and

Xaa_4- is Ala, Asp, Glu, or Thr; and

(c) Xaa_5-Z_2 is a protein of interest, in which Xaa_5 can be any amino acid and Z_2 is a polypeptide of at least one amino acid.

2. (previously presented) The fusion protein of claim 1, wherein

Xaa_1 is Asp,

Xaa_2 is Ile,

Xaa_3 is Asn,

Xaa_4-is Asp, and

Xaa_5-is Met, Thr, Ser, Ala, Asp, Leu, Phe, Asn, Trp, Ile, Gln, Glu, His, Val, Gly or Tyr.

3. (canceled)

4. (previously presented) The fusion protein of claim 1, wherein the ligand recognition sequence Z_1 is a streptavidin binding domain.

5. (original) The fusion protein of claim 4, wherein the streptavidin binding domain is selected from the sequences: His-Pro-Gln-Phe (SEQ ID NO:6), Cys-His-Pro-Gln-Phe-Cys (SEQ ID NO:5), Cys-His-Pro-Gln-Phe-Cys-Ser-Trp-Arg (SEQ ID NO:7), Trp-His-Pro-Gln-Phe-Ser-Ser (SEQ ID NO:210), Pro-Cys-His-Pro-Gln-Phe-Pro-Arg-Cys-Tyr (SEQ ID NO:211), and tandemly arranged combinations and repeats thereof.

6. – 49. (canceled)

50. (currently amended) The fusion protein according to claim 1, wherein said ligand recognition sequence Z_1 ~~is selected from the group consisting of: streptavidin, avidin, an antibody, a peptide antigen recognized by the antibody,~~ comprises the Myc-tag, the Flag peptide, the KT3 epitope peptide, an α-tubulin epitope peptide, ~~a polyhistidine tag~~, a chitin binding domain, maltose binding protein (MBP), ~~and~~ or a T7 gene 10-protein peptide tag.

51. (Previously presented) The fusion protein according to claim 1, wherein incubation of said polypeptide (SEQ ID NO:1) with enterokinase yields the protein of interest Xaa_5-Z_2.

52. (new) The fusion protein of claim 1 wherein said ligand recognition sequence Z_1 comprises streptavidin or avidin.

53. (new) The fusion protein of claim 1 wherein said ligand recognition sequence Z_1 comprises an antibody.

54. (new) The fusion protein of claim 1 wherein said ligand recognition sequence Z_1 comprises a peptide antigen recognized by an antibody.

55. (new) The fusion protein of claim 1 wherein said ligand recognition sequence Z_1 comprises a polyhistidine tag.

56. (new) The fusion protein of claim 1 further comprising a signal sequence.

57. (new) The fusion protein of claim 1 wherein Xaa_1 is Asp.

58. (new) The fusion protein of claim 1 wherein Xaa_2 is Ile.

59. (new) The fusion protein of claim 1 wherein Xaa_3 is Asn.

60. (new) The fusion protein of claim 1 wherein Xaa_4-is Asp.

61. (new) The fusion protein of claim 1 wherein Xaa_5 is Arg, Lys, Cys, Met, Thr, Ser, Ala, Asp, Leu, Phe, Asn, Trp, Ile, Gln, Glu, His, Val, Gly or Tyr.

62. (new) The fusion protein of claim 1 wherein Xaa_5 is Arg, Lys, Met, Thr, Ser, Ala, Asp, Leu, Phe, Asn, Trp, Ile, Gln, Glu, His, Val, Gly or Tyr.

63. (new) The fusion protein of claim 1 wherein Xaa_5 is Arg, Met, Thr, Ser, Ala, Asp, Leu, Phe, Asn, Trp, Ile, Gln, Glu, His, Val, Gly or Tyr.

64. (new) The fusion protein of claim 1 wherein Xaa_5 is Met, Thr, Ser, Ala, Asp, Leu, Phe, Asn, Trp, Ile, Gln, Glu, His, Val, Gly or Tyr.

65. (new) The fusion protein of claim 1, wherein Xaa_1 is Asp, Xaa_2 is Ile, Xaa_3 is Asn, and Xaa_4-is Asp.

66. (new) The fusion protein of claim 1, wherein Xaa_1 is Ser, Xaa_2 is Leu, Xaa_3 is Asp, and Xaa_4-is Asp.

67. (new) The fusion protein of claim 1, wherein Xaa_1 is Phe, Xaa_2 is Ser, Xaa_3 is Glu, and Xaa_4-is Glu.

68. (new) The fusion protein of claim 1, wherein Xaa_1 is Ile, Xaa_2 is Glu, Xaa_3 is Asp, and Xaa_4-is Glu.

69. (new) The fusion protein of claim 1, wherein Xaa_1 is Ala, Xaa_2 is Ala, Xaa_3 is Val, and Xaa_4-is Glu.

70. (new) The fusion protein of claim 1 that is isolated.

71. (new) The fusion protein of claim 2, 4, 5, 50, 51, 52, 53, 54, 55, or 56 that is isolated.

72. (new) The fusion protein of claim 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, or 59 that is isolated.